

### ABSTRACT

An ion thrusting system is disclosed comprising an ionization membrane having at least one area through which a gas is passed, and which ionizes the gas molecules passing therethrough to form ions and electrons, and an accelerator element which accelerates the  
5 ions to form thrust. In some variations, a potential is applied to the ionization membrane may be reversed to thrust ions in an opposite direction. The ionization membrane may also include an opening with electrodes that are located closer than a mean free path of the gas being ionized. Methods of manufacture and use are also provided.